Financial Institutions Management

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# Capital Adequacy Requirements in the Commercial Banking Industry

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# I. Introduction

## Function of the FI's capital

In our research we started by asking the question: What is the function of capital or otherwise known as shareholders equity in a financial institution? We were quite surprised to find out that capital serves a different purpose than the capital of the common non-financial firm. Capital is the means of owning both types of entities however in a FI it seems capital is there more to protect the institution against the risk of insolvency It sure doesn't sound very pleasing to common equity investors in a financial institution, however there must be other reasons to invest in the capital of a FI so we decided to explore further.

## Why are there capital adequacy requirements

The first function of capital is to "absorb unanticipated losses with enough margin to inspire confidence and enable the FI to continue as a going concern" (Saunders & Cornett, 2008). The second function is that it protects non-equity holders especially the ones who are not insured by a government guarantor such as the FDIC. In this case while depositors to a FI are insured by the FDIC up to $250,000, other liabilities holders such as the debt holders of the FI or the banks that have made loans to the FI are uninsured by the FDIC, therefore they seek further protection. This situation seems to align the interests of non-insured liability holders along with the regulators in making sure that the FI has sufficient capital on hand to protect against insolvency. In contrast regulators also have an incentive to keep a FI institution solvent. If a FI fails, regulators such as the FDIC have to bear the costs. If in turn the insurance fund becomes insolvent it is taxpayers that will ultimately bear the costs. The forth function of capital is to reduce the costs that FIs pay to the insurance fund that is there to rescue them. These costs are in the form of insurance premiums. This arrangement gives the FI an incentive to keep its capital ratios as required. The fifth function of capital is to fund the expansion of fixed assets such as branches, ATMs

and other real assets so the bank can increase its service base and hopefully interest and other income (Saunders & Cornett, 2008). The above reasons to keep a certain capital are somewhat different than the reasons a regular product/service based corporation are required to keep capital, however we must not forget the unique business FIs are in: making capital available for the participants in the economy.

### Current Case in the Industry: HomeStreet Inc.

In our research we came across the prospectus of an FI which is on the road to become a publicly traded company. The prospectus explained that the Washington based community banking and residential lender HomeStreet Inc. had some difficulty meeting capital asset requirements imposed by the FDIC due to the decrease in the value of its loan assets. The company therefore was trying to raise capital in order to meet those requirements. The company had recently gone through a reorganization of its business by ramping up its lending standards, changing its practices and employing new managers (HomeStreet, Inc., 2011). To draw a conclusion from an investor's point of view about the function of capital in a FI, it doesn't sound as such a lucrative investment. It actually sounds as more risky investment than regular product/service companies. Maybe there are other incentives that encourage investors to invest in FIs of which we are not aware of.

## II. Insolvency Risk and Capital

The two main risks that can cause the devaluation of assets are credit risk and interest rate risk. Credit risk arises from the inability of borrowers to pay interest and principal payments. The cause of this could be because there is a recession and unemployment is high. When borrowers are not able to make payments the value of the loan asset portfolio of an FI goes down. Interest rate risk also could cause a decrease in the value of loan assets. Because the decrease of the value of the assets causes a direct decrease of the equity capital of the firm, shareholders are the ones who first bear the cost of these two risks (Saunders & Cornett, 2008). Only after the equity capital of an FI is completely wiped out, do

creditors begin to lose value. Therefore we believe investing in the capital of FIs is highly risky. Regulators and creditors therefore require FIs to hold larger amounts of capital. The more amount of capital an FI holds the less it is prone to insolvency risk. With this however comes a trade-off. The additional capital that a FI holds could be utilized by giving out more loans or to set up more off-balance sheet arrangements, therefore increasing the interest and premiums revenue of an FI.

## Measuring the value of capital: Book Value vs. Market Value

In order for regulators and creditors to set appropriate capital adequacy ratios they first need to measure the amount of capital that a FI holds. This is usually done by subtracting the assets from the liabilities on the balance sheet of the FI. There is however a debate about which value of the assets and liabilities should be used. First there is the value at which the loans and liabilities were originally issued or otherwise known as the book value. However, interest rates and riskiness of default constantly change which in turn causes the value of the assets and liabilities to change. Supporters of the market value method argue that due to the dynamic change in value of the assets they should constantly be "marked to market" or re-evaluated (Saunders & Cornett, 2008).

A problem arises when balance sheet items are recorded based on their book value. For example when the borrowers of a loan begin to miss interest and principal payment the market value of the loan asset portfolio will decrease. Often however managers of FIs are hesitant to record a loss on the balance sheet if they believe their jobs might be threatened. Therefore recognition of losses or write downs of book value often occur with a time lag. A good example is when Japanese banks delayed in recognizing loan losses incurred as a result of the Asian financial crisis in late 1990s (Saunders & Cornett, 2008).

When it comes to interest rate shocks the disparity between market and book value is even greater, because the change in value is rarely recognized. For example during the 1980s when interest rates rose to record highs many savings and loan institutions (S&Ls) failed to recognize the decrease in value of

their assets. Many S&Ls later went insolvent when they eventually had to recognize those losses. As a general rule the more variable interest rates are the wider becomes the discrepancy between real market value and the book value. The more strict a regulator is by frequently engaging in on-site and off-site examinations the less the disparity is. A good measure to evaluate this discrepancy is to find the **market value to book value ratio**. The lower the ratio is the higher the discrepancy is.

The SEC and FASB have opposed using market value accounting because it is difficult to value the assets of small community banks and lending institutions, because they are not traded (Saunders & Cornett, 2008). However, as securitization engulfs through most types of loans today, it is becoming easier to value even the smallest loans.

The second argument against market value accounting is that it introduces a greater variability in the equity capital of an FI. However maybe this variability is not important if a FI plans to hold these assets to maturity when it does not realize any gains or losses. Actually the growth of securitization has led most FIs to engage in more selling and trading of assets rather than holding them to maturity (Saunders & Cornett, 2008). Therefore a method such as mark-to-market might be useful after all. In fact all FIs determine the market value of the assets at the time of sale. Therefore why not as well report the assets at their market values. FIs might argue that the valuing of assets without the purpose of sale might be redundant and not cost efficient, however the benefits of transparency might outweigh the costs during a period of market skepticism such as the real estate crisis of 07-08. At the time many FIs seized to lend each other money because they did not know how much the other party was exposed to toxic assets.

The third argument against market value accounting is that FIs who have longer term loans shouldn't be marking them to market because they are highly variable and could cause swings in credit lending by those institutions (Saunders & Cornett, 2008). We think FIs should focus on long term risk management strategies instead of paying attention to short term swings. If in the past long term assets were not

marketed to market that does not mean they were not varying with the market. Using mark to market accounting on long term assets exposes their true value swings, which theoretically should not limit the capacity of lending by FIs. It should only make it easier to assess the true risk of those assets. Lastly we believe banks are not in the business of investing in loan portfolios, but are in the business of assessing risk and making capital available. The advent of securitization has benefits by enabling banks to trade loan portfolios therefore making loan portfolio rebalancing and diversification easier, however it has also caused banks to engage in loan portfolio speculation. An example of loan portfolio speculation might be when an FI invests in collateralized debt obligations with the purpose of achieving capital gains in the future.

## III. Capital Adequacy in Commercial banking industry and thrifts

The main regulator of commercial and thrift institutions, the FDIC has imposed a set of rules that have to be followed by those FIs. The rules involve maintaining certain ratios such as capital asset ratio and risk-based capital asset ratios. While the former is a suitable measure of total leverage the latter tries to decompose the individual credit risks within the assets of an FI. By decomposing those risks the assets could be better assessed on an individual basis (Saunders & Cornett, 2008).

### Capital Asset Ratio

The capital asset ratio uses the book value of the equity and the book value of the assets to measure the leverage of the FI. **Leverage= Core Capital ÷ Assets**. Hence the higher the ratio is the safer the FI is from insolvency. The FDIC has established a set of levels in which an FI is evaluated. The first level is “Well capitalized” which required the FI to maintain a leverage ratio of 5%. The second level is “adequately capitalized” which is at 4%. The third level is undercapitalized at fewer than 4%. The forth level is significantly undercapitalized at below 3% and the last is critically undercapitalized at less than 2%. These stages require a mandatory set of actions that regulators should take if the FI is to go down the

scale. Strict rules have been imposed, because during the S&L crisis of the 1980s regulators did not have a standard set of rules and therefore gave greater discretion to FIs. Today regulators have a strict set of actions such as prompt corrective action (PCA) to take if the capital of an FI falls below a certain level. For example when an FI goes below the "adequately capitalized" level to "undercapitalized", the regulator would demand the FI to suspend dividends and management fees, require a capital restoration plan, restrict asset growth, and demand approval for acquisitions, branching and other material business change activities (Saunders & Cornett, 2008).

It is interesting to point out that before the financial crisis of 2007-2008 some FIs had accumulated very large capital reserves. This was due mostly to the increased interest income loan servicing revenue. It seems however that most of this revenue must have been paid out as RE (retained earnings) to shareholders, because the loan loss reserves of FIs were on the decline right before the crisis occurred. A bank's book value capital is a combination of **retained earnings**, **loan loss reserve**, **par value of shares** and **additional value of shares over the par value** (Saunders & Cornett, 2008).

Although a creditable measure of leverage of an FI, the capital asset ratio has some flaws. This first flaw is that even though the book value leverage of an FI falls below 2% there is no guarantee that this is the correct market price of assets and capital. The second flaw is the capital asset ratio over-aggregates the varying risks associated with the different loan assets such as credit risks, interest rate and operational risks. Finally the rules under the capital asset ratio do not require FIs to set aside additional capital to meet the potential insolvency risks in regards to the growing amount of off-balance sheet activities that FIs engage in. In recent years off-balance sheet arrangements have added to the bottom line of FIs. Many of these arrangements are contingent on an event occurring. It is in a way like insurance writing that FIs engage into which could be profitable, however if probabilities of events or risks are

miscalculated a FI could stand to be liable. Therefore a measure that includes these risks would be more representative.

## Risk-Based Capital Ratios

To compensate for the weaknesses of the capital asset ratio, the Bank of International Settlements (BIS) implemented new **risk-based capital ratios**. The BIS is an organization that fosters international monetary and financial cooperation between central banks, however is not accountable for the debts of any national government (Saunders & Cornett, 2008).

## Decomposing the Total Risk-Based Capital Ratio

The ratio **Total Capital ÷ Credit risk-adjust assets** is known as the total risk-based ratio. Based on the regulations by the BIS a bank must hold total capital to credit-risk adjusted assets of no less than 8%. The numerator is an addition of Tier I capital and Tier II capital. Tier I capital is the FIs common stock, qualifying preferred stock and minority interest in subsidiaries. Tier II capital is the supplementary capital which is made up of allowance for loan losses, subordinated debt and other hybrid and convertible securities. Tier II capital is more risky than Tier I capital, because it stands to be the first recourse if assets were to decline in value. Tier I's minimum ratio has to be 4% and Tier II has to be for 4%. The entire ratio is decomposed like this:

**Total Capital (Tier I + Tier II) ÷ Credit Risk-Adjust Assets = 8%**

If this ratio falls below the 8% floor regulators have a series of prompt corrective action steps to take. Those steps are described below under the Basel II headline (Saunders & Cornett, 2008).

Lastly there is an argument regarding setting higher minimum capital requirements. The argument states that if capital requirements increase FIs might engage in more risky activity to increase their

equity. This incentive arises because there is a trade-off between the **cost of issuing new equity** and the **cost of making a risky investment** with the goal of increasing your equity (Saunders & Cornett, 2008).

## Basel I

The very first risks that were implemented into capital adequacy measures were the different types of **credit risk** on and off the balance sheet in 1993 in the so called Basel Accord. Later additional risk measures were implemented such as **market risk** in 1998 which was in the shape of an addition to the 8% minimum ratio for credit risk exposure (Saunders & Cornett, 2008).

## Basel II

In 2001 operational risk was also incorporated in determining capital requirements of FIs. This amendment included a set of rules of capital regulation or also called pillars. The amendment became known as Basel II. Basel II required banks to have 2% equity capital and 4% Tier I capital of risk-adjusted assets. The regulation also enacted procedures that describe how to assess the three types of risk: credit risk, market risk and operational risk. Credit risk being most significant is described here.

Under the Basel II Agreement there are two ways to assess credit risk. The first way is similar to the capital asset ratio. However it uses Tier I and Tier II assets as a numerator and credit risk-adjusted assets as a denominator.

**Total risk-based capital ratio = Total Capital (Tier I + Tier II) ÷ (Credit risk-adjusted assets)**

The total risk-based capital ratio depends on determining the credit risk-adjusted assets. The credit risk-adjusted assets could be found by weighing the risks of each asset. Therefore Basel II proposed a table that ranks the different assets by their riskiness, using credit ratings. For example U.S. Treasury securities would hold 0% weight because they are considered riskless, while sovereign government debt rated at A+ would be considered to have 20% weight. Some assets could have a weight over 100% such

as loans to sovereigns, banks, and securities firms with an S&P credit rating below B- (Saunders & Cornett, 2008).

The risk category table has met some criticism, because it bases its weights on credit ratings. Due to the fact that credit ratings have been proven inaccurate in the past, Basel II gave more lenience to banks in using their own internal models (Detrixhe, 2011). Basel II also stressed the importance of regulatory supervisory review of the internal processes a bank has. It is important to review internal processes to make sure that an FI is setting appropriate target goals based on its risk profile. Finally Basel II also introduced disclosure rules that will make the capital structure of FIs more transparent. Higher transparency allows market regulators along with market participants to accurately assess the risks of an FI.

## Basel III

Basel III is the new global regulatory standard for capital adequacy of banks. It was enacted in direct response to the deficiencies in financial regulation reveled by the financial crisis that occurred in 2007-2008. In addition to the already enacted measures of credit risk, operational risk and market risk, Basel III introduced a minimum 3% leverage ratio and two new liquidly measurement ratios. The **Liquidity Coverage Ratio (LCR)** requires banks to hold a sufficient amount of liquid assets that could be used as a cushion for a period of 30 days (Bank of International Settlements, 2011). The LCR is sort of like imposed floor to how low can the leverage ratio become. The lower the ratio is the more levered an FI is. The second ratio introduced is the **Net Stable Funding Ratio (NSFR)** which is a more long term structural liquidly ratio. It seeks to calculate the proportion of long term assets which are funded by long term stable liabilities. This measure is essentially trying to reduce refinancing risk. Refinancing risk was the main reason why the two U.S. investment banks Bear Sterns and Lehman Brothers experienced runs by their investors. Both banks were highly reliant on short-term funding from the International Lending

Market (Interbank lending market, 2009). Lending in the International Lending Market is between banks. Loans are with maturities of one week or less with most being overnight. Usually banks that have excess capital above their minimum capital ratios will lend money to those that don't have enough on reserves. The underfunded FIs will borrow money to meet their capital requirements and liquidly needs. The cost of borrowing is determined by availability of money and is published by a couple of interbank rates that we mentioned in class: (Federal funds rate, LIBOR and the Euribor) (Interbank lending market, 2009).

Lastly the leverage ratio will be changed to include the off-balance sheet exposures. "This will serve as a backstop to the risk-based capital requirement (Bank, 2011)." Supplemental Pillar 2 covers the governance and risk management of the banking system. It does this by getting the numbers from the "off-balance sheet exposures and securitization activities. It gives banks motivation to improve its risk management and returns over the long term (includes sound compensation practices, valuation practices, stress testing, etc.) (Bank, 2011). Pillar 3 involves securitization exposures and off-balance sheet vehicles. It enhances the regulations by making banks have a detailed "explanation of how a bank calculates its regulatory capital ratios (Bank, 2011)."

## Basel III: Summary

The general idea of Basel III is to enact a series of measures that will incentivize banks to build up capital buffers during times of economic expansion, which could be drawn during periods of stress. These measures will reduce the procyclicality of FIs, meaning that they will not correlate as strongly with the general economy. Usually in times of economic expansion or contraction FIs are the first sector to benefit or be harmed by the movements. For example Basel III will require banks to hold 4.5% of common equity as opposed to the 2% that Basel II requires. Tier I capital which includes mostly common equity and retrained earnings has grown from 4% Basel II requirement to 6% Basel III requirement (Bank

of International Settlements, 2011). This regulation requires shareholders of FIs to have more "skin in the game" therefore incentivizing them to enact measures that will limit the risk taken on by FIs.

# IV. Comparisons/differences between regulations

The general idea of Basel III is to enact a series of measures that will incentivize banks to build up capital buffers during times of economic expansion, which could be drawn during periods of stress. Unlike Basel II it has a more long-term focus. The Basel III measures will reduce the procyclicality of FIs, meaning that they will not correlate as strongly with the general economy. Usually in times of economic expansion or contraction FIs are the sector to benefit most or be harmed most by the movements. Basel III will require banks to hold 4.5% of common equity as opposed to the 2% that Basel II requires. Tier I capital which includes mostly common equity and retrained earnings has grown from 4% Basel II requirement to 6% Basel III requirement (Bank of International Settlements, 2011). This regulation requires shareholders of FIs to have more "skin in the game" therefore incentivizing them to enact measures that will limit the risk taken on by FIs. The new Basel III regulations are due to be implemented by 2015 (Implementing Basel III, 2011).

## Macroeconomic Effects

Lastly Basel III is a regulation that is determined to make a structural change to the banking sector. Some have argued that Basel III will decrease global GDP growth by .05% to .15%. This is due to the fact that in order for banks to reach the higher reserve requirements they will have to pass costs down to borrowers. The measures however provide a true enterprise risk management structure that considers all risks to the business (Macroeconomic Impact of Basel III, 2011).

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